

## By 1980 25% Of Nation's Electricity To Be Nuclear Generated Says Larson

Continued growth and development of the United States nuclear energy industry were forecast by Dr. C. E. Larson, President of the Nuclear Division, Union Carbide Corporation.

Speaking at the National Engineers Week banquet in Mobile, Ala., on the subject of "Energy—Today and Tomorrow," Dr. Larson explained that in a comparatively short time, atomic energy has taken its place in the economic life and future of the nation.

"There are now on order or firm plans for the equivalent of 80 one-thousand-megawatt nuclear generating plants," he said. "The physical energy from a 1,000 megawatt reactor is equal to the physical work of 15 million people. In other words, 14 reactors of this size make available more energy than the combined physical work output of the total population of the country."

### Agro-Industrial Complex

Discussing some of the newer applications of nuclear energy, Dr. Larson described as highly significant the recently announced project to study the potential of nuclear-powered agricultural centers for the Middle East. This concept was developed at the Oak Ridge National Laboratory, one of four facilities operated by the Nuclear Division, Union Carbide Corporation, for the U.S. Atomic Energy Commission.

"I am firmly convinced that the agro-industrial concept has great potential for fostering peace and good will in some of the war-troubled parts of the world," he said. He added, however, that accomplishment of this objective requires the coordinated efforts of "scientists, engineers, economists and, above all, effective government direction."

Dr. Larson also reported on work being done in connection with breeder reactors—reactors that actually produce more fissionable material than is consumed. In particular, he stressed the importance of the Molten Salt Reactor Experiment at the Oak Ridge National Laboratory.

Late last year, the Molten Salt Reactor Experiment became the world's first reactor to operate on uranium-233 fuel. When compared to solid-fuel power plants in operation today, the molten salt concept has potential economic advantages of improved steam conditions and high thermal efficiency because of its high operational temperature. Dr. Larson said that the basic technical feasibility of molten salt reactors has been demonstrated by the experience with the Molten Salt Reactor Experiment.

### Research—Development

The economics of nuclear energy also were discussed by Dr. Larson, who said that one of the most significant items in obtaining nuclear fuel is the cost of enriching services. "The fact that the cost is comparatively low—and indeed that nuclear energy is competitive at all—must be attributed to the vigorous research and development programs pursued at Nuclear Division facilities," he stated.

"Most people think that gaseous diffusion, with its high energy requirement, is a very expensive process. In fact, many people, seeing the tremendous energy put into gaseous diffusion plants, openly question whether the electricity that goes into the plants can be recovered. I would like to reassure you by explaining that every kilowatt of electricity fed into a gaseous diffusion plant will return more than 25 kilowatts in the nuclear electric generating cycle."

He added that by 1980, at least 25 percent of the United States electrical power will be generated from nuclear fuel. He also said that nuclear energy, together with many spinoff activities, offered great promise for the future.

"Man has the key to the proper use of abundant energy in our environment," he said. "He may use it for good or evil. Our use of energy is, in the final analysis, entirely subject to human choice and human direction."

## Y-12 Contributes To Technology

Y-12 made significant contributions to the nation's private industry in 1938 through the release of technical information.

This 'Spin-off' program consisting of published reports, journal articles, and society papers is aimed at making newly developed unclassified technology available to American industry.

During 1938, the plant released some 33 detailed reports on such subjects as machine tool innovations, analytical chemistry, metallurgy, powder metallurgy, computer programming and health physics. In addition, Y-12 scientists and engineers authored 18 articles for scientific journals and presented 19 papers at professional society meetings.

Y-12 also answered over 300 requests for industrial, scientific and educational plants and institutions. Approximately 50 of these requests were received from 18 foreign nations.

Most of the Y-12 unclassified reports are obtainable by the public from the AEC's Division of Technical Information Extension, Oak Ridge or from the Clearinghouse for Scientific and Technical Information, National Bureau of Standards, U. S. Department of Commerce, Springfield, Virginia 22151.

### Final Foreign Film

"The Sleeping Car Murder," a 1965 French release, will be the final film in the current American Association of University Women Film series. It will be shown Sunday, March 2, at 8 p.m. at Robertsville Junior High School Auditorium. Simone Signoret, Yves Montand, and Catherine Allegret star in thrilling chases involving the police, the killer, and the victims characterize the action which Costa Gavras directs with a fast sharp style that shows his ability to create movie suspense.

Tickets for the film will be available at the door Sunday. Proceeds from this series are used to further graduate study for women.

## Revisions In Pension Plan Proposed By Union Carbide

Union Carbide Corporation has announced major improvements in the non-contributory Pension Plan and Group Insurance Plan for all eligible salaried employees. Among these improvements are a Pension Plan change which will result in an increase in retirement income, a minimum monthly pension, pension benefits for a surviving spouse; and reduction in the costs for basic life insurance. If approved by stockholders and the Internal Revenue Service, the changes will be effective July 1, 1969.

One of the principal benefits involves basing pension calculations on the final five years' earnings before retirement—or the best five calendar years of the final 10 calendar years—whichever results in the greater benefit to the employee. This change will mean a substantial increase in retirement benefits for eligible employees. Previously, benefits were calculated on the final 10 years before retirement.

### A Minimum Pension

A new provision is a minimum monthly pension of \$4 times the years of service, plus 10 percent of the average monthly earnings during the last five years before retirement. The amount paid is subject to reduction for any contributory Retirement Plan benefits payable.

In addition, if an employee with 10 years of service dies while in active employment and at the time of death is 55 years of age or older, his spouse will automatically receive for life a benefit of approximately 50 percent of the pension benefit the employee would have received had he retired on the date of his death.

### Wait Period Reduced

As an added benefit, the waiting period for election of post-retirement surviving spouse option has been reduced from one year to one month before retirement.

Eligible employees who have retired prior to July 1, 1969, will

receive an increase of five percent in their monthly retirement income, with a minimum of \$10 and a maximum of \$25 per month.

Since salaried employees are already protected under the salary continuation policy when absent due to disability, the sickness and accident benefits—and related payroll deductions from their salary—will be discontinued after July 1.

### More Insurance Available

Another important change in the Group Insurance Plan involves life insurance. Once the changes become effective, salaried employees who carry the basic amount of group life insurance now available will be offered the opportunity to purchase, at attractive rates, additional insurance in an amount equal to one half of the basic amount. The following rates will apply to this optional insurance:

**Under age 40:** \$0.25/month for each \$1,000 of insurance.

**40 through 54:** \$0.65/month for each \$1,000 of insurance.

**55 through 64:** \$1.60/month for each \$1,000 of insurance.

In addition, the rate charged employees for basic life insurance will be reduced from 40 cents to 37½ cents per month per \$1,000 for the first \$20,000 of insurance, which includes total and permanent disability coverage. The rate charged for life insurance over \$20,000 will be 25½ cents per month per \$1,000. Since these new rates are lower, insurance dividends will no longer be paid.

### T & P Extended

Another improvement is in total and permanent disability benefits, which currently are paid over a five-year period. Effective July 1, payment of these benefits over periods of up to 20 years will be paid at the option of the individual.

Another change involves discontinuing enrollments in the Retirement Plan. Since the new plan gives employees the opportunity to purchase low-cost supplement insurance, no new enrollments will be accepted in the Retirement Plan.

Employees already enrolled in the Retirement Plan can continue to make contributions, discontinue making further contributions, or withdraw from the plan.

### ANOTHER SOURCE OF INCOME

Remember the old joke about how little a man was worth—that the value of all the chemical elements in the human body was only 98¢? It's no longer so funny. Due to the demand for enzymes and nucleic acid, the market value of the chemicals in the human body is now about \$800.00!

### SAFETY SCOREBOARD

The Y-12 Plant Has  
Operated  
**93 Days Or**  
**2,736,000 Man-Hours**  
(Unofficial Estimate)  
**Through February 23**  
**Without A Disabling Injury**  
**SAFETY AT HOME,**  
**AT WORK, AT PLAY**



A 'NEW ALLOY' DEVELOPMENT has merited a patent application of the Development Division, looks on at left, as R. B. Burdett, J. L. Cadden, and J. M. Googin are congratulated by P. R. Vanstrum, technical director.



# The Bulletin

Published Weekly For The  
Y-12 Employees Of  
UNION CARBIDE  
CORPORATION



NUCLEAR DIVISION

JAMES A. YOUNG ..... Editor

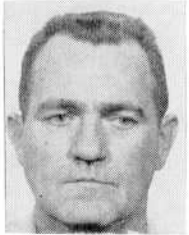
Member Appalachian  
Industrial  
Editor's  
Association

American Association Industrial Editors

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## T. Smith Rites Held In Alabama

February 17 was another sad day for the General Machine Shop. Mr. Thomas J. Smith died as he was leaving work from an apparent heart attack. A native of Dallas, Alabama, Mr. Smith came here August 31, 1959, after working with the Continental Gin Company, Birmingham.



T. J. Smith

The Smith home is at 104 Davis Lane, Oak Ridge, where the wife, Mrs. Inez Atkinson Smith, survives. A daughter Mrs. Brenday Kay Cooper, Birmingham, also survives; and two sisters, Mrs. Bertha Beason and Mrs. Glacie Reeves, both in Alabama. Two brothers Morrell Smith, Arab, Alabama; and Enzle Smith, Blountville, Alabama, also survive.

After receiving friends at a local funeral home, the family removed the body to Oneonta, Alabama, for services and burial on Wednesday, February 19.

Sincere sympathy is extended the Smith family.

## Beware Aerosol Spray Cans!

Aerosol cans can explode violently when subjected to heat, warns the National Safety Council.

The Council suggests the following precautions:

- Read the label and use the contents exactly as directed.
- Don't throw empty aerosol containers in the fire or incinerator. Although seemingly empty, the cans still contain some gas, which expands when heated and may cause an explosion.
- Don't place aerosol cans on stoves or in any hot area, even the sun. Some aerosol products left in the trucks of automobiles have been known to explode when the car was parked in the sun.
- Don't use flammable sprays around flame sources. In tests, spray vapor has caught fire, shooting flames seven feet out of the mouth of the can.
- Use spray paints, lacquers, insecticides and other toxic aerosol products only with good ventilation. If you feel drowsy, dizzy or nauseated, stop work immediately to get fresh air.
- Before discarding the can, always depress the operating valve until all pressure is relieved. Better yet, tape the valve open.

## BEAR, BORE, BOARD

Parents are people who bear infants . . . bore teen-agers . . . and board newly-weds.



March . . . in like a lion, out like a lamb, we hope. 'In,' these days, are several Y-12ers, marking important dates with Union Carbide. Congratulations.

### 25 YEARS

**William A. Pfeiler**, Metallurgical Development, February 26.

**Alvin M. Kirksey**, Research Services, February 28.

**Ernest C. Ward**, Buildings, Grounds and Maintenance Shops, February 29.\*

**Donald G. Hill**, Maintenance Division, February 29.\*

**Floyd H. Ludwig**, General Metal Fabrication Shop, March 1.

**Ernest V. Hawk**, Material Specimen Shop, March 2.

**Charles J. Greene**, Buildings, Grounds and Maintenance Shops, March 2.

**George W. Evans**, Superintendents Division, March 4.

**Howard M. Cheek**, Utilities Administration, March 4.

### 15 YEARS

**Hubert Y. Rollen**, Beta Four Heavy Machine Shop, March 1.

**John E. Clemons**, G-3 Processing, March 1.

**Russell T. Goodpasture**, Production Analysis, March 1.

**Paul R. Wilson**, A-2 Shops, 9212, March 1.

**Charles R. Brazda**, General Shop Inspection, March 1.

**Jennings Baird**, Alpha Five Machine Shop, March 1.

**Lawrence M. Meadows**, Research Services, March 1.

**Ernest R. Martin**, Physical Testing, March 2.

**Eugene M. Miller**, 9766 Machine Shop, March 2.

**Ralph M. Meade**, Dispatching Department, March 4.

### 10 YEARS

**Mildred L. Morris**, Technical Administration, March 2.

**Helen G. Estep**, General Shop Job Liaison, March 2.

**Eula M. Estes**, Machine Tool Engineering, March 4.

\*Sorry, men. There is no February 29 this year! Happy anniversary anyway.

Apologies to **Mary W. Cooper**, who celebrated her 25th anniversary with Union Carbide on February 19. Her name was incorrectly listed in last week's Bulletin.

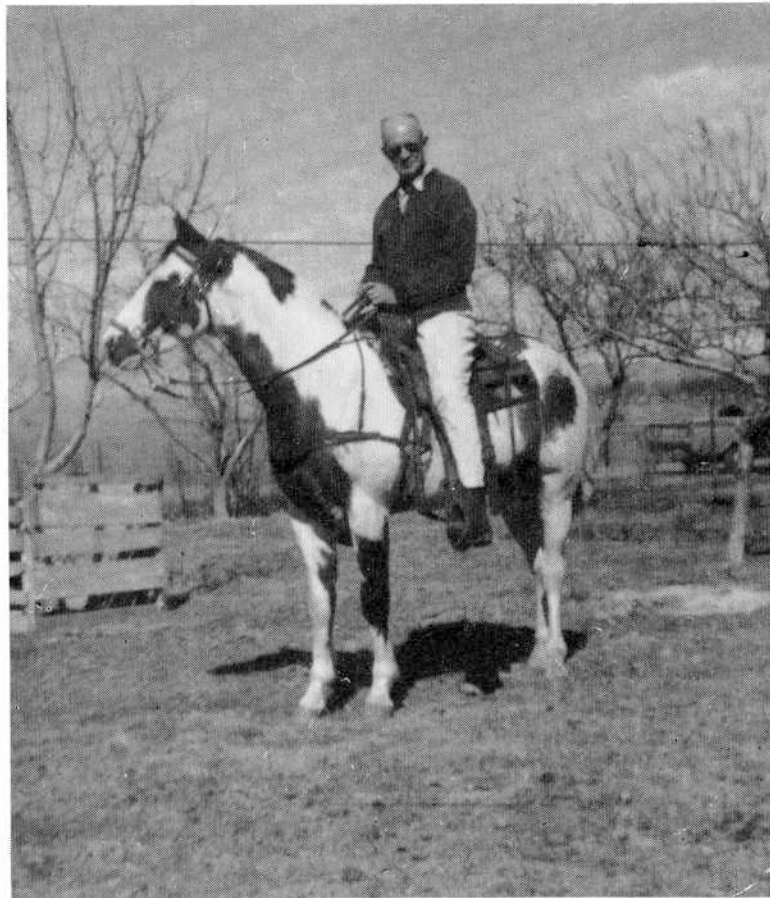
## New Chemical Unit Is Set At Institute

Union Carbide Corporation has announced that it will build a 15-million-pound-per-year unit at its complex in Institute, West Virginia, that will triple its capacity to produce ethylidene norbornene (ENB), an important third ingredient in the production of weather-resistant (EPDM) rubber. The new unit will use a Union Carbide-patented manufacturing process for making this chemical.

Start-up of the large unit, which will replace a 5-million-pound unit in operation since 1967, is expected in the last quarter of 1969. Demand for EPDM rubber is growing rapidly and the market in the United States is expected to increase from the current 115 million pounds to 400 million pounds or more in 1975.

EPDM rubber goes into a wide variety of products for use in the home, in industry, on the farm, and in other areas. These include electrical appliances, garden and industrial hose, wire and cable, pipe gaskets, conveyor belting, coated fabrics and linings, farm machinery, curtain wall gaskets, and rug underlays.

## Hoss Business Makes Profitable Hobby For Y-12er Phillips On Watts Bar Spread!



**DALE L. PHILLIPS, MACHINE TOOL ENGINEERING**, sits astride his handsome stallion Trigger Dee. The Y-12 horseman breeds and trains pintos and quarter-horses, on his 'baby-farm' on Gallaher Road, adjoining Watts Bar Lake.

If horses are your 'hang-up' you'll find Dale Phillips a mighty fine conversationalist. (P.S. He may be able to steer you around, too, with advice on the hoss-raising business.)

Phillips lives with his family down on a spread on Gallaher Road, just west of K-25. With his baby-farm of six acres, he puts an interesting hobby to profit on the greens abutting Watts Bar Lake.

Take Trigger Dee, for instance, a pinto stallion. T. D. finished fourth in 1965 and sixth in 1967 in the U.S.A. in his breed, and is used at halter and for match racing. The Phillipses raise pintos as well as quarter horses. (A quarter horse is the fastest horse going, according to Phillips, in short races . . . that is, just a quarter of a mile in distance.)

## Child Care Course Is Offered Here

The American Red Cross, in cooperation with the YWCA, Girl Scouts, Campfire Girls and the Rainbow Girls, is offering a course in Child Care to adults who are interested in becoming instructors for this course.

The Child Care course will be taught by Juanita Boring, Red Cross director of nurses from Knox County. It will be held at the Red Cross Building, on the Turnpike, beginning Tuesday, March 4, from 10 a.m. until 2:30 p.m. It will be held again at those hours on March 6 . . . and on March 11, 13, 18 and 20 from 10 a.m. until 1 p.m.

A nursery will be provided if needed.

Upon completion of the course in Child Care, instructors will teach upper elementary and high school students who are interested in baby-sitting and care of younger children in the home.

Contact the Red Cross office, Oak Ridge telephone 483-5641, for registration or further information.

## GREATER LOVE

A patriotic orator is a speaker who is always willing to lay down your life for his country.

## Fire Takes Toll Again In 1968

Fire killed approximately 12,100 people in this country during 1968, the National Fire Protection Association reported recently.

This was a slightly improved record compared with the previous year, when the toll was 12,200.

Deaths in dwelling fires rose to 6,600 in 1968, however, an increase of approximately 100 over the 1967 total.

Property destroyed by fire during the past year totaled \$2,180,000,000 preliminary NFPA estimates indicate.

A record high, this is an increase of approximately \$63,800,000 over the 1967 total.

Of the property loss total, \$1,800,000,000 represents damage to buildings and contents. Non-building fires — those involving aircraft, ships, motor vehicles and similar equipment as well as forests — cost about \$380,000,000.

The worst loss of life from fire last year occurred on November 20 at Farmington, West Virginia, where a fire and explosion in a coal mine killed 78. In Richmond, Indiana, 41 persons lost their lives in an explosion and fire in the downtown business district on April 6, apparently starting in the ammunition stock of a sporting goods store. There were 21 dead in a salt mine fire at Belle Isle, Louisiana, on March 5.

The worst property loss fire of 1968 was the \$12,000,000 destruction of former textile mill buildings housing several industries, in Bondsville, Massachusetts, on October 4. A high school fire in New Rochelle, New York, on May 17 cost \$9,000,000. At Atlantic City, New Jersey, on April 28, the fire following the crash of a Douglas DC-8 being used for pilot training purposes cost \$5,000,000.

## MSU's Muthukrishnen Physics Seminar Guest

R. Muthukrishnen, Michigan State University, will be guest speaker at this week's Physics Division seminar. His topic is "Properties of Effective Two-Nucleon Interactions in Finite Nuclei."

The seminar is set for tomorrow, Thursday, February 27, in the East Auditorium of ORNL's 4500 building, at 3.15 p.m.

## SILVER LINING

Father, on examining son's report card: "Well, there's a silver lining here, I believe. With these grades, you couldn't possibly be cheating."



**LUNCHTIME ON THE PHILLIPS' SPREAD**, just below the K-25 Plant. Three of the Phillips mares are in foal, due in April. Phillips, in Y-12's Machine Tool Engineering, says out West that folks have horses about like people around here have dogs. 'Everybody has a saddle horse,' he says.



## Big 5 Make Move In C Alley Race

The Big Five moved up on the leaders in the C Bowling race last week with a three and one-half point victory over the Sunflowers, the biggest win of the week.

Three points went to the Parbustlers by the Jokers Five, the Badgers by the Rounders, the Instrument Engineers around the Royal Flush and the Invalids past the Rollmasters.

Sharing two were the Fireballs and HiLifers.

George Bailey, Rollmasters, rolled a 224 single scratch game . . . Oscar Martin, Fireballs, posted a 257 handicap single. Norm Jarvis, Big Five, rolled a 631 scratch series . . . and Tony Pagano, Instrument Engineers, zeroed in with a 671 handicap series.

The HiLifers had high singles . . . 908 scratch, 1040 handicap . . . while the Big Five belted out high series . . . 2656, and 2998.

League standings follow:

Team	W	L
Rollmasters	25	11
Big Five	21½	10½
Parbustlers	21	15
Sunflowers	19½	16½
Badgers	19	17
Fireballs	19	17
HiLifers	18½	17½
Instrument Engineers	18	18
Rounders	17	19
Jokers Five	14	18
Invalids	11½	24½
Royal Flush	8	28

## Tigers In Four Point Classic Lead

The Tigers still command top spot in the Classic Bowling League after a three-point win over the Eagles. Posting four were the Pinbusters by the Splinters and the Eightballs over the Bumpers.

Taking three were the Smelters superior to the Rippers, the Rebels by the Has Beens, the Swingsters over the Screwballs, the Playboys by the All Stars and the Cubs over the Markers.

Dick Huber, All Stars, rolled a 232 scratch game. Dave Woody, Screwballs, scored a 259 handicap single. Huber's scratch series of 617 was high . . . and Woody's 696 handicap series was very high.

The Rebels rang the bell in scratch game count, 904. Tigers took handicap singles' highs with 1029. The Swingsters scored a 2540 scratch series . . . and the Pinbusters put a 2993 handicap series down.

Team	W	L
Tigers	27	9
Pinbusters	23	13
Smelters	21	15
Rebels	21	15
Splinters	19	17
All Stars	19	17
Has Beens	18	18
Eagles	18	18
Swingsters	18	18
Screwballs	18	19
Markers	16	20
Bumpers	15½	20½
Rippers	15½	20½
Playboys	15	21
Cubs	14	22
Eightballs	11	25

**DRIVE DEFENSIVELY.  
LIKE YOUR LIFE  
DEPENDS ON IT.  
IT DOES.**



WATCH OUT  
FOR THE  
OTHER GUY!

Published to save lives in cooperation with  
The Advertising Council and the National Safety Council.



**ONLY TWO Y-12 TEAMS CONSTITUTE** the Volleyball League this year . . . one the above team, the Beta 4 Astros. The Astros are, front row, from left, D. F. England, Captain D. H. Gallion, C. K. McDowell. Standing are Jack England, L. E. Pate, J. M. Nevils, Bobby Tichenor. Not present when the photo was made were J. H. Moore, J. R. Hayes, H. G. Overton, P. E. Roberts, L. E. Woods, and S. L. Flippin.

## Recreation



**Sunday, March 2**

**SKEET TOURNAMENT:** 1 p.m. Oak Ridge Sportsmen's Association Range.

**Monday, March 3**

**TABLE TENNIS:** 7 p.m., Oak Ridge Wildcats' Den.

**BOWLING:** C League, 5:45 p.m. Ark Lanes.

**PHYSICAL FITNESS (For Women):** 7:30 p.m., Oak Ridge High School Girls' Gym.

**BASKETBALL:** Beginning 6:30 p.m. Oak Ridge High School Gym. Carbide Trojans vs. Guess Who; Isotopes vs. Soul Men; Cobols vs. Bombers.

**Tuesday, March 4**

**PISTOL LEAGUE:** 6:15 p.m. Oak Ridge Sportsmen's Association.

**PHYSICAL FITNESS (For Men):** 7:30 p.m., Oak Ridge High School Gym.

**BASKETBALL:** Beginning 6:30 p.m. Oak Ridge High School Gym. Bums vs. Computes; Cavaliers vs. Butter Balls; Beta 2 Miners vs. CC 69ers.

**Wednesday, March 5**

**BASKETBALL:** Beginning 6:30 p.m. Oak Ridge High School Gym. Ail Stars vs. Biomedes; Dag Mops vs. Quarks; Bat Boys vs. GBU's.

**BOWLING:** Mixed League, 8 p.m., Ark Lanes.

**Thursday, March 6**

**BOWLING:** Classic League, 5:45 p.m. Ark Lanes.

**ARCHERY LEAGUE:** 5, 6 and 7 p.m. Indoor Range, Oak Ridge Sportsmen's Association.

**VOLLEYBALL:** Final Night. Beginning 6:30 p.m. Oak Ridge High School Gym. Court A: Set-Ups vs. Naughts; Beavers vs. K-25 Hawks; Nemesis vs. M&C; Court B: Ecobums vs. ORAU; Defects vs. Semanon; Old Men vs. Beta 4 Astros.

A bride is a gal who smiles at her husband the way she will at the butcher in a year or two.

## Y-12 Beavers Close To Nailing Down Another Volleyball Title As Big Champs

Volleyball action began at a fast clip last Thursday, as the Defects downed Y-12's Beta Four Astros 15-8, 15-0, 15-1 and 15-4. The Ecobums and Semanon shared two games . . . the Bums winning one and four 15-10 and 15-8; the Semanon winning the middle games 15-12, 15-7. The Nemesis proved just that for ORAU 15-7, 15-6, 15-4 and 15-10.

On Court B, Y-12's Beavers continued their merry chase by ousting Metals & Ceramics 15-8, 15-6, 15-9 and 15-2. The K-25 Hawks clipped the Set-Ups 15-10, and 15-10 in games one and four . . . the Set-Ups won two and three, 15-12 and 15-10. The Gas-house Gang got two victories by the Naughts, 15-3 and 17-15 . . .

the Naughts taking games two and three, 15-2 and 15-12.

Team	W	L
Beavers, Y-12	39	1
Nemesis, K-25	32	8
Ecobums, ORNL	27	13
Old Men, ORNL	26	19
K-25 Hawks	25	15
Set-Ups, ORNL	25	15
Defects, ORNL	24	16
Semanon, ORNL	23	17
ORAU	10	30
K-25 Gas-house Gang	11	33
Naughts, ORNL	10	34
M&C, ORNL	9	31
Beta 4 Astros, Y-12	3	37

## Four Golf Tournaments Are Already Set In '69

Four golf tournaments are already set for sportsmen this Summer! There's one more being negotiated, and it will be announced soon.

Already nailed down are the following:

**April 26**—Wallace Hills, Maryville.

**May 17**—Gatlinburg.

**June 28**—Southwest Point, Kingston.

**July**—Open

**August 23**—Whittle Springs, Knoxville.

Get those irons hot, men, time's a-fleeing!



Ride wanted from Fort Loudoun Dam area, Lenoir City, or can catch ride in town, to Biology Portal, straight day. Margie Leek, plant phone 3-5256, home phone Lenoir City 986-8298.

Riders wanted from Halls Cross Roads, to any portal along Bear Creek Road, straight evening shift (4:30 to 12:30 p.m.). Frank Moore, home phone Knoxville 687-2900.

Ride wanted from East Village, Oak Ridge, to West Portal, H Shift. Bob Presley, plant phone 3-5405, home phone Oak Ridge 483-6012.

## 69ers, Computes Keep Close 2nd In Basketball

Bad weather hindered not the Basketballers last week, as action began Monday with the Computes dominating the Bat Boys in a one-sided affray 61 to 32.

Larry Finch, as usual, took an even two dozen points from the bucket . . . Jim Treadwell 18.

Hugh Beeson was 'top dog' for the losers, with 10.

The Butter Balls came in with game two with one of their finest performances of the year, downing the Ail Stars to the tune of 56 to 31. Outstanding rebounding saw Bob Belt scrapping them off the boards, also scoring 16 big points. Curt McGinnis led the winners with 19.

The Bums belted the Dagmops 34 to 19 in final action Monday. Lowrey Underwood scored 10 for the winners . . . M. L. Wilkerson 12 for the losing squad.

The Biomedes held the GBU's close to the ground in the first half of their game Tuesday . . . but then turned the big team loose. The GBU's won going away 49 to 29.

Doug Rymer ran up 11 points; Ron Gamrot, 10 for the big team which still boasts a clean slate. Paul Selby and Jerry Batson led scoring for the losers.

The CC 69ers posted an easy victory by taking a forfeit from the Quarks.

The first game Tuesday saw the Beta 2 Miners take a win from the Guess Who team, 46 to 37. Jim Milligan and John Scott led the big Miners in scoring, 14 and 20 respectively . . . as the Guess Who team plays everybody in the ranks.

The Carbide Trojans eked by the Isotopes 45 to 44 in the closest game of the week.

Churchill Moore proved his metal under the net with 20; T. Davis, 19 . . . both for the winning Trojans. Ray Vandermeer put 11 through for the lost Isotope cause.

The Bums won forfeitwise by the Soul Men Wednesday.

Wednesday's play got started as the Bombers belted the Dagmops 42 to 16 in no game at all.

Roy Nabors nailed 17 through the bucket; Ron Kress, 12 . . . both for the Bombers.

The last game of the week saw the Cavaliers come through with a close victory over the Cobols 37 to 34 . . . the Cavs winning with a good fourth quarter.

Rich Hudson dropped 17 through; Jerry Goddard, 12 . . . both on the plus side and Troy Deets scored seven for the Cools.

League standings follow:

Team	W	L
GBU's, Y-12	11	0
CC 69ers, Y-12	9	1
Computes, ORNL	9	1
Bombers, ORNL	8	3
Cavaliers, ORNL	8	5
Beta 2 Miners, Y-12	7	4
Biomedes, ORNL	7	5
Butter Balls, ORNL	7	5
Ail Stars, Y-12	6	6
Quarks, Y-12	6	6
Bums, Y-12	6	7
Isotopes, ORNL	5	6
Carbide Trojans, K-25	5	7
Guess Who, ORNL	2	9
Bat Boys, Y-12	2	10
Dagmops, Y-12	1	11
Soul Men, ORNL	0	11



"They tell me you started out in the stockroom...How about giving me a hand?"



# Acres, Crawford, Gardner, McGinnis, Dickenson, Nickle And Walter Retire

February, the shortest of the months, sees more Y-12ers achieving retirement status... some via the early route. More than 158 years of service to Union Carbide is represented by the seven long-time employees. Congratulations and best wishes to each of them.

## Lloyd Acres Receiving

Born: Oneida, Tennessee  
Csd: September 14, 1944  
Home: Route 5, Clinton.

## Lester R. Crawford General Field Shops

Born: Ft. Worth, Texas  
Csd: May 1, 1944  
Home: 1401 Charles Drive, Knoxville

## Arthur A. Gardner Graphite Shop

Born: Lenoir City, Tennessee  
Csd: September 17, 1948  
Home: 2109 Lawson Street, Knoxville

## Asa Lloyd McGinnis Area Five Maintenance

Born: Thornhill, Tennessee  
Csd: May 19, 1944  
Home: 105 Fulton Lane, Oak Ridge

## Elmer F. Nickle Process Maintenance

Born: Knoxville  
Csd: August 21, 1951  
Home: 5015 Sullivan Road, Knoxville

## Lawrence Walter Utilities Administration

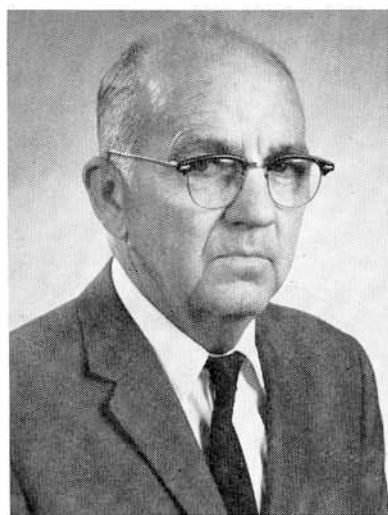
Born: Spettedwell, Tennessee  
Csd: October 20, 1943  
Home: Route 2, Jellico

## Harry L. Dickenson Fire Department

Born: Russellville, Tennessee  
Csd: August 10, 1943  
Home: 301 West Faunce Road, Oak Ridge



Harry L. Dickenson



Lloyd Acres



Lester R. Crawford



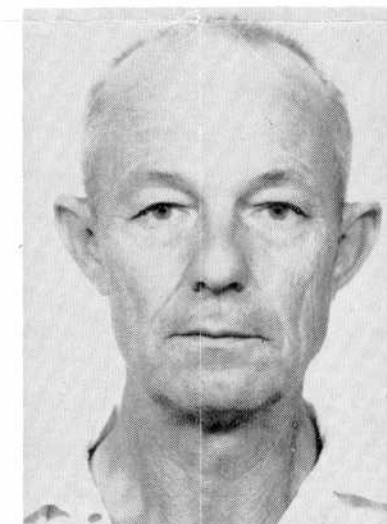
Arthur A. Gardner



Asa Lloyd McGinnis



Elmer F. Nickle



Lawrence Walter

Company's Research and Development Division. He was with Hughes for 12 years and helped establish that company's laser operations. Dr. Stitch was technical director of the group that developed the first laser range finder in 1961 and the first fully militarized laser equipment. Later he set up Hughes' Laser Development Department, which he managed for three years.

He is chairman of the laser subdivision of the Electronic Industries Association, has chaired sessions on laser technology at aerospace seminars, and organized the first short course on quantum electronics at the University of California in Los Angeles. He was the first laser scientist to be invited to tour the Soviet Union as a guest of the Soviet Academy of Sciences. He is a member of several scientific societies, including the New York Academy of Science, the Institute of Electrical and Electronic Engineers, and the American Physical Society, as well as the American Management Association.

## Laser Pioneer Joins Union Carbide

Laser pioneer Malcolm L. Stitch has joined Union Carbide Corporation's Electronics Division as assistant general manager of the division's Korad Department. He will be responsible for the development of all Korad's commercial and military product lines as well as for research and development activities. Dr. Stitch will be headquartered in Santa Monica, California, where the Korad Department is located. Union Carbide is a leading designer and manufacturer of lasers and laser accessories and is active in laser research and development.

Dr. Stitch is former chief scientist—lasers at Hughes Aircraft

## 'More Than Just You'



Frank Lively

(Editor's Note: From time to time a very timely safety message of the week strikes the fancy of the plant. These messages are written and read over the plant public address system by individuals throughout the plant. The one below is the work of Frank Lively, Fabrication Division.)

"Each of us takes pride in a job well done. Planning is an important factor in accomplishing this task.

"Safety First' should always



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NUCLEAR DIVISION  
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## New Water Pollution Control Studied In Small Pilot Unit By Union Carbide

A new process which may have a significant impact on water pollution control is under investigation by Union Carbide Corporation, it was announced by Birny Mason Jr., chairman of the board. The new process uses oxygen rather than air in treating sewage in conventional secondary waste treatment plants. The standard practice currently used at such plants is to bubble large quantities of air through the wastewater to provide the required amount of oxygen for treatment prior to discharge to a river or lake.

Based on laboratory and pilot plant tests, the new process is expected to reduce the cost and improve the quality of sewage treatment. Union Carbide's Linde Division, who developed the process, was recently awarded a 19-month contract exceeding a half million dollars by the Federal Water Pollution Control Administration (FWPCA) of the Department of Interior to demonstrate the process in a full-scale treatment plant.

The new waste treatment process has been tested in a small pilot unit at the municipal sewage treatment plant at Batavia, New York, for several months. The large-scale demonstration program will also be conducted in Batavia and will involve detailed studies of numerous process variables by a direct comparison of the new process with the conventional air aeration technique operating on the same wastewater feed stream.

### 'Promising Results'

"All of us associated with the program," Mason said, "are very appreciative of the Government and the people of Batavia for their willing cooperation in helping to make this project possible. We are confident that the highly promising results of the laboratory and pilot plant studies will be borne out by the demonstration program at Batavia. Moreover, our scientists are investigating techniques which indicate that oxygen processes may be applicable to many industrial waste treatment problems as well."

Mason noted that "This is the latest, and perhaps most dramatic, example of many programs underway throughout Union Carbide related to the general problem of water and air pollution control."

Efficient processes for treating both municipal and industrial wastes are essential to the control of environmental pollution. Without adequate treatment, organic wastes accumulate in streams and ground water until natural processes are no longer able to dispose of the contamination. As a result of such pollution buildup, vital water resources become unusable.

### Oxygen Aeration

A common method of disposing

of pollutants in wastewaters is the activated sludge process, which is currently used in Batavia. In this process, large quantities of air are bubbled through wastewaters that contain dissolved organic substances. Bacteria and other types of microorganisms present in the system grow and multiply by "breathing" the oxygen and consuming the dissolved organic "food" in the waste. After several hours in a large holding tank, the water is separated from the sludge of bacteria and discharged from the system. Part of the activated sludge is returned to the treatment process, while the remainder is disposed of by one of several accepted methods such as sanitary landfill or burning.

Dr. John R. McWhirter, who heads up the project at the Linde laboratories in Tonawanda, New York, indicated that while aeration with ordinary air can supply the oxygen required for treatment, the use of oxygen aeration has long been considered as a potentially more efficient method. However, he pointed out, early tests of oxygen aeration—some of which go back more than 20 years—failed to disclose any dramatic improvements and indicated certain utilization inefficiencies and cost problems associated with oxygen use.

One of the important features of Union Carbide's new oxygen aeration process is a highly efficient method of contacting oxygen with the wastewater and microorganisms. Results to date have shown that the new process produces higher dissolved oxygen levels and lower oxygen transfer costs than with air aeration. This provides a more active and efficient biological oxidation system. Moreover, biological phosphate and nitrate removal appear to be improved which is important in preventing excess plant growth.

The Batavia program is intended to show that a reduction in the size of the plant required to handle a given quantity of waste—or an increase in the capacity of an existing installation are possible. In addition, the use of oxygen rather than air is expected to provide lower levels of BOD (biological oxygen demand) indicating the product discharged to the river or lake would be "cleaner" than is now possible, thus providing beneficial effects to the receiving body of water.

If the plant-scale operation at Batavia confirms the favorable results obtained in pilot-scale apparatus, Union Carbide will market the process for application in both the municipal and industrial fields.

### Could Increase Capacity

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### MAMA'S MANAGEMENT

A housewife we know says after a difficult day with the children she likes to take a drive by herself in the family auto. "Then at least I have something in my hands I can control," she states.